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MEMORANDUM

DATE: November 3, 2010

TO: Jeff Fetters, START-3 Project Manager, E & E, Seattle, Washington

FROM: Mark Woodke, START-3 Chemist, E & E, Seattle, Washington MW

SUBJ: **Data Summary Check,**
South Tacoma Channel Seep Site, Tacoma, WA

REF: TDD: 10-05-0004 PAN: 002233.0569.01SI

The data summary check of 4 water samples collected from the South Tacoma Channel Seep site located in Tacoma, Washington, has been completed. Gasoline range organics (Ecology Method NWTPH-Gx) analyses were performed by the Manchester Environmental Laboratory, Port Orchard, Washington.

The samples were numbered: 10354000 10354001 10354002 10354003

No discrepancies were noted.

Km

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10 LABORATORY
7411 Beach Dr. East
Port Orchard, Washington 98366

MEMORANDUM

SUBJECT: Data Release for Total Petroleum Hydrocarbon - Gasoline Range Analysis Results from the USEPA Region 10 Laboratory

PROJECT NAME: South Tacoma Channel Seep

PROJECT CODE: TEC-985A

FROM: Gerald Dodo, Supervisory Chemist
Office of Environmental Assessment, USEPA Region 10 Laboratory

TO: Brandon Perkins, SAM
Office of Environmental Cleanup, USEPA Region 10

CC: Renee Nordeen
Ecology and Environment, Inc.

I have authorized release of this data package. Attached you will find the Total Petroleum Hydrocarbon-Gasoline Range (TPH-Gx) results for the South Tacoma Channel Seep project samples collected 09/01/10. For further information regarding the attached data, contact me at 360-871-8728.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10 LABORATORY
7411 Beach Dr. East
Port Orchard, Washington 98366

QUALITY ASSURANCE MEMORANDUM FOR ORGANIC CHEMICAL ANALYSES

Date: November 2, 2010

To: Brandon Perkins, SAM
Office of Environmental Cleanup, USEPA Region 10

From: Gerald Dodo, Chemist
Office of Environmental Assessment, USEPA Region 10 Laboratory

Subject: Quality Assurance Review for the Total Petroleum Hydrocarbon - Gasoline Range Analysis of Samples from the South Tacoma Channel Seep Project

Project Code: TEC-985A
Account Code: 10T10P302DD2C10ZZLA00

CC: Renee Nordeen
Ecology and Environment, Inc.

The following is a quality assurance review of the data for total petroleum hydrocarbon - gasoline range (TPH-Gx) analysis of water samples from the above referenced site. The analyses were performed by the EPA Region 10 Laboratory ESAT contractor using Washington State Department of Ecology Method NWTPH-Gx (GC/MS).

This review was conducted for the following samples:

10354000 10354001 10354002 10354003

1. Data Qualifications

Comments below refer to the quality control specifications outlined in the Laboratory's current Quality Assurance Manual, Standard Operating Procedures (SOPs) and the Quality Assurance Project Plan (QAPP). No excursions were required from the method Standard Operating Procedure.

The quality control measures which did not meet Laboratory/QAPP criteria are annotated in the title of each affected subsection with "*Laboratory/QAPP Criteria Not Met*".

The Region 10 Laboratory's Quality System has been accredited to the standards of the National Environmental Laboratory Accreditation Conference (NELAC).

2. Sample Transport and Receipt

Upon sample receipt, no conditions were noted that would impact data quality.

3. Sample Holding Times

The concentration of an analyte in a sample or extract of a sample may increase or decrease over time depending on the nature of the analyte. The holding time maximum criteria applied for the analysis of preserved water samples is 14 days from the time of collection. All samples were analyzed within this criterion.

4. Sample Preparation

Samples were prepared according to the method.

5. Initial Calibration/Continuing Calibration Verification (CCV)

An initial calibration was performed on 09/08/10 for TPH-Gx (unleaded gasoline composite) and the surrogate, 1,4-difluorobenzene. Percent relative standard deviations (%RSDs) of the RRFs met the criteria of ≤20%.

The CCVs met the criteria for frequency of analysis and the percent accuracies of 80-120% of the true value for TPH-Gx.

6. Blank Analysis

Method blanks were analyzed with each analytical sequence to evaluate the potential for laboratory contamination and effects on the sample results. TPH-Gx was not detected in the blanks.

7. Surrogate Spikes

Surrogate recoveries are used to help in the evaluation of laboratory performance on individual samples. All surrogate recoveries for the samples were within the criteria of 50-150%.

8. Laboratory Control Sample/Duplicate (LCS/LCSD)

Data for LCS and LCSD are generated to provide information on the accuracy and precision of the analytical method and the laboratory performance. The LCS/LCSD recoveries were within the criteria of 60-140% with a relative percent difference (RPD) of ≤20.

9. Matrix Spike/Matrix Spike Duplicate Analysis (MS/MSD)

MS/MSD analyses are performed to provide information on the effects of sample matrices toward the analytical method. An MS/MSD analysis was performed using sample 10354001 (S1/S2). The recoveries of TPH-Gx met the criteria of 60-140% with an RPD of ≤20.

10. Compound Quantitation

The initial calibration functions were used for calculations. Reported quantitation limits were based on the initial calibration standards and sample size used for the analysis.

All manual integrations have been reviewed and found to comply with acceptable integration practices.

11. Identification

TPH-Gx range organics were not detected in any of the samples.

12. Data Qualifiers

All requirements for data qualifiers from the preceding sections were accumulated. Each sample data

summary sheet and each compound was checked for positive or negative results. From this, the overall need for data qualifiers for each analysis was determined. In cases where more than one of the preceding sections required data qualifiers, the most restrictive qualifier has been added to the data.

The usefulness of qualified data should be treated according to the severity of the qualifier in light of the project's data quality objectives. Should questions arise regarding the data, contact Gerald Dodo at the Region 10 Laboratory, phone number (360) 871 - 8728.

Qualifier	Definition
U	The analyte was not detected at or above the reported value.
J	The identification of the analyte is acceptable; the reported value is an estimate.
UJ	The analyte was not detected at or above the reported value. The reported value is an estimate.
R	The presence or absence of the analyte can not be determined from the data due to severe quality control problems. The data are rejected and considered unusable. No value is reported with this qualification.
NA	Not Applicable, the parameter was not analyzed for, or there is no analytical result for this parameter. No value is reported with this qualification.

Manchester Environmental Laboratory
Report by Parameter for Project TEC-985A

Project Code:	TEC-985A	**Collected:**	9/1/10	**14:00:00**
Project Name:	SOUTH TACOMA CHANNEL SEEP	**Matrix:**	Liquid	
Project Officer:	BRANDON PERKINS	**Sample Number:**	10354000	
Account Code:	10T10P302DD2C10ZZLA00	**Type:**	Reg sample	
Station Description:	TB01WT			

			Result	Units	Qlfr
ORG					
Parameter	: Total Petroleum Hyd, Gasoline				Container ID : A1
Method	: NWTPH-G	Gasoline range organics			Analysis Date : 9/8/2010
Prep Method	: 5030	Purge and Trap			Prep Date :
Analytes(s):	8006619	Unleaded gasoline composite	50	mg/L	U
Surrogate(s :	540363	Benzene, 1,4-difluoro-	101	%Rec	

Manchester Environmental Laboratory
Report by Parameter for Project TEC-985A

Project Code:	TEC-985A	**Collected:**	9/1/10	**9:40:00**
Project Name:	SOUTH TACOMA CHANNEL SEEP	**Matrix:**	Liquid	
Project Officer:	BRANDON PERKINS	**Sample Number:**	10354001	
Account Code:	10T10P302DD2C10ZZLA00	**Type:**	Reg sample	
Station Description:	SP01GW			

			Result	Units	Qlfr
ORG					
Parameter	: Total Petroleum Hyd, Gasoline				Container ID : A1
Method	: NWTPH-G	Gasoline range organics			Analysis Date : 9/8/2010
Prep Method	: 5030	Purge and Trap			Prep Date :
Analytes(s):	8006619	Unleaded gasoline composite	50	mg/L	U
Surrogate(s :	540363	Benzene, 1,4-difluoro-	95	%Rec	

Report by Parameter for Project TEC-985A

Project Code:	TEC-985A	**Collected:**	
Project Name:	SOUTH TACOMA CHANNEL SEEP	**Matrix:**	Liquid
Project Officer:	BRANDON PERKINS	**Sample Number:**	10354001
Account Code:	10T10P302DD2C10ZZLA00	**Type:**	Matrix Spike
Station Description:			

			Result	Units	Qlfr
ORG					
Parameter	: Total Petroleum Hyd, Gasoline				Container ID : A2
Method	: NWTPH-G	Gasoline range organics			Analysis Date : 9/8/2010
Prep Method	: 5030	Purge and Trap			Prep Date :
Surrogate(s :	540363	Benzene, 1,4-difluoro-	85	%Rec	
	8006619	Unleaded gasoline composite	94	%Rec	

Manchester Environmental Laboratory
Report by Parameter for Project TEC-985A

Project Code:	TEC-985A	**Collected:**	
Project Name:	SOUTH TACOMA CHANNEL SEEP	**Matrix:**	Liquid
Project Officer:	BRANDON PERKINS	**Sample Number:**	10354001
Account Code:	10T10P302DD2C10ZZLA00	**Type:**	Matrix Spike Dupl
Station Description:			

			Result	Units	Qlfr
ORG					
Parameter	: Total Petroleum Hyd, Gasoline				Container ID : A3
Method	: NWTPH-G	Gasoline range organics			Analysis Date : 9/8/2010
Prep Method	: 5030	Purge and Trap			Prep Date :
Surrogate(s :	540363	Benzene, 1,4-difluoro-	87	%Rec	
	8006619	Unleaded gasoline composite	97	%Rec	

10354001 Matrix Spike Du

Report by Parameter for Project TEC-985A

Project Code:	TEC-985A	**Collected:**	9/1/10	**10:15:00**
Project Name:	SOUTH TACOMA CHANNEL SEEP	**Matrix:**	Liquid	
Project Officer:	BRANDON PERKINS	**Sample Number:**	10354002	
Account Code:	10T10P302DD2C10ZZLA00	**Type:**	Reg sample	
Station Description:	SP02GW			

			Result	Units	Qlfr
ORG					
Parameter	: Total Petroleum Hyd, Gasoline				Container ID : A1
Method	: NWTPH-G	Gasoline range organics			Analysis Date : 9/8/2010
Prep Method	: 5030	Purge and Trap			Prep Date :
Analytes(s):	8006619	Unleaded gasoline composite	50	mg/L	U
Surrogate(s :	540363	Benzene, 1,4-difluoro-	86	%Rec	

Report by Parameter for Project TEC-985A

Project Code:	TEC-985A	**Collected:**	9/1/10	**11:27:00**
Project Name:	SOUTH TACOMA CHANNEL SEEP	**Matrix:**	Liquid	
Project Officer:	BRANDON PERKINS	**Sample Number:**	10354003	
Account Code:	10T10P302DD2C10ZZLA00	**Type:**	Reg sample	
Station Description:	SP03GW			

ORG

Parameter : Total Petroleum Hyd, Gasoline — Container ID : A1
Method : NWTPH-G Gasoline range organics — Analysis Date : 9/8/2010
Prep Method : 5030 Purge and Trap — Prep Date :

			Result	Units	Qlfr
Analytes(s):	8006619	Unleaded gasoline composite	50	mg/L	U
Surrogate(s :	540363	Benzene, 1,4-difluoro-	86	%Rec	

Manchester Environmental Laboratory
Report by Parameter for Project TEC-985A

Project Code:	TEC-985A	**Collected:**	
Project Name:	SOUTH TACOMA CHANNEL SEEP	**Matrix:**	Liquid
Project Officer:	BRANDON PERKINS	**Sample Number:**	JBW0251A
Account Code:	10T10P302DD2C10ZZLA00	**Type:**	Blank
Station Description:			

			Result	Units	Qlfr
ORG					
Parameter	: Total Petroleum Hyd, Gasoline				Container ID :
Method	: NWTPH-G	Gasoline range organics			Analysis Date : 9/8/2010
Prep Method	: 5030	Purge and Trap			Prep Date :
Analytes(s):	8006619	Unleaded gasoline composite	50	mg/L	U
Surrogate(s :	540363	Benzene, 1,4-difluoro-	106	%Rec	

Manchester Environmental Laboratory
Report by Parameter for Project TEC-985A

Project Code:	TEC-985A	**Collected:**	
Project Name:	SOUTH TACOMA CHANNEL SEEP	**Matrix:**	Liquid
Project Officer:	BRANDON PERKINS	**Sample Number:**	TPH0251
Account Code:	10T10P302DD2C10ZZLA00	**Type:**	LCS
Station Description:			

			Result	Units	Qlfr
ORG					
Parameter	: Total Petroleum Hyd, Gasoline				Container ID :
Method	: NWTPH-G	Gasoline range organics			Analysis Date : 9/8/2010
Prep Method	: 5030	Purge and Trap			Prep Date :
Surrogate(s :	540363	Benzene, 1,4-difluoro-	117	%Rec	
	8006619	Unleaded gasoline composite	107	%Rec	

Manchester Environmental Laboratory
Report by Parameter for Project TEC-985A

Project Code:	TEC-985A	**Collected:**	
Project Name:	SOUTH TACOMA CHANNEL SEEP	**Matrix:**	Liquid
Project Officer:	BRANDON PERKINS	**Sample Number:**	TPH0251X
Account Code:	10T10P302DD2C10ZZLA00	**Type:**	LCSD
Station Description:			

			Result	Units	Qlfr
ORG					
Parameter	: Total Petroleum Hyd, Gasoline				Container ID :
Method	: NWTPH-G	Gasoline range organics			Analysis Date : 9/8/2010
Prep Method	: 5030	Purge and Trap			Prep Date :
Surrogate(s :	540363	Benzene, 1,4-difluoro-	90	%Rec	
	8006619	Unleaded gasoline composite	93	%Rec	